

REMARKS

Claims 1-25 are pending in this application. Claim 25 is newly added and support is found in Figs. 1, 2 and 11 of the originally filed drawings. No new matter is added. Claims 16-24 have been withdrawn by the Examiner.

I. Claim Objections

The Examiner objected to claims 7 and 10 because of informalities. The self-explanatory amendments to these claims correct the informalities, and the objection to these claims should be withdrawn.

II. Claim Rejections - 35 U.S.C. § 112

The Examiner rejected claims 13 and 14 under 35 U.S.C. 112, second paragraph, as being indefinite. On line 2 of claim 13, claim 13 recites “a third region” and correctly uses an indefinite article “a” to newly introduce “a third region”. Therefore, the newly introduced “a third region” in claim 13 does not require any antecedent basis because it is introduced properly with indefinite article “a”.

On line 2 of claim 14, claim 14 recites “the third region” and uses a definite article “the” to refer back to “a third region” in claim 13. Therefore claim 14, which depends from claim 13, has its proper antecedent basis in claim 13.

Since the claims are not indefinite, Applicant respectfully requests the Examiner to withdraw this rejection of claims 13 and 14.

III. Claim Rejections - 35 U.S.C. § 102

The Examiner rejected claims 1, 2, 4-7, 10-12 and 15 under 35 U.S.C. 102(b) as allegedly being anticipated by Harvey (WO 99/01284).

Of the rejected claims, claim 1 is the only independent claim. Herein amended claim 1 is supported in Figs. 1, 2 and 11 of the originally filed drawings. In particular, Fig. 11 shows the disclosed “first” and “second” regions.

Herein amended claim 1 requires:

a metallic chamber formation plate, having a first region in which a plurality of pressure generating chambers are formed, and a second region in which a plurality of dents are formed, wherein each of the dents prevents ink from flowing therein; and

a metallic nozzle plate, formed with a plurality of nozzles, the nozzle plate joined to the chamber formation plate such that each of the nozzles is communicated with one of the pressure generating chambers

The Examined asserted that Harvey teaches “a metallic chamber formation plate (Fig. 1 and Fig. 2, element 17), having a first region (Fig. 1 and Fig. 2, location of element 20) in which a plurality of pressure generating chambers (Fig. 2, element 22) are formed, and a second region (Fig. 1 and Fig. 2, location of element 16) in which a plurality of dents (Fig. 1, element 16) are formed; and a metallic nozzle plate (Fig. 2, element 19), the nozzle plate joined to the chamber formation plate such that each of the nozzles is communicated with one of the pressure generating chambers (page 9, lines 28-32).” (Office Action, page 5).

First, the Examiner identified the “plurality of dents” in Harvey as cut away segments 16 in interposer plate 17. Harvey teaches the cut away segments 16 allow ink to flow from the channels 15 into the ink chambers. (Harvey page 8, line 31 - page 9, line 1). Contrary to the disclosure in claim 1 regarding the “plurality of dents”, the cut away segments 16, which “allow ink to flow from channels 15 into the chambers¹”, cannot be said to disclose “a plurality of dents...wherein each of the dents prevents ink from flowing therein [emphasis added]”. Therefore, Applicant submits that the subject matter of claim 1 is not anticipated by Harvey.

Second, the interposer plate 17 in Harvey is not a chamber formation plate. That is, Harvey teaches the “piezoelectric sheet 14 is machined...so as to form a plurality of recesses for defining the ink chambers 22, actuating regions 10 being formed in respective bottom walls thereof [emphasis added].” (Harvey page 8, lines 23-25; *See also* Figs. 1 and 2). Also, Figs. 1 and 2 of Harvey show that no ink chambers 22 are formed on the interposer plate 17. Therefore,

¹ Harvey page 8, line 31 through page 9, line 1.

interposer plate 17 of Harvey cannot be said to be “a metallic chamber formation plate, having a first region in which a plurality of pressure generating chambers are formed”.

Third, the Examiner identified the “first region” in Harvey as the location of orifice 20 on the interposer plate 17, but the identified location does not teach or suggest “having a first region in which a plurality of pressure generating chambers are formed”, because the pressure generating chambers (ink chambers 22) are formed on the piezoelectric sheet 14, not the interposer plate 17. In Harvey, the identified “first region” and “pressure generating chambers” are on two separate plates, interposer plate 17 and piezoelectric sheet 14, respectively. Therefore, the identified elements in Harvey do not meet the requirement for “a metallic chamber formation plate, having a first region in which a plurality of pressure generating chambers are formed”.

For the reasons discussed above, Harvey fails to teach or suggest the subject matter of claim 1. Applicant therefore respectfully requests the Examiner to withdraw this rejection of independent claim 1 and its dependent claims 2, 4-7, 10-12 and 15.

IV. Claim Rejections - 35 U.S.C. § 103

A. Claims 3 and 8

The Examiner rejected claims 3 and 8 under 35 U.S.C. 103(a) as allegedly being unpatentable over Harvey (WO 99/01284) in view of Witteveen (US 5,165,061).

Witteveen does not compensate for the deficiencies of Harvey vis-à-vis base claim 1. By dependency alone the claims are allowable.

Further, regarding claims 3 and 8, the identified “plurality of dents” in Witteveen are nozzles 15 through which ink is ejected and do not disclose a “plurality of dents...each of the dents allows ink not to flow therein” claimed in base claim 1.

The combination of Witteveen and Harvey fails to make claims 3 and 8 unpatentable for the reasons presented above. Thus, claims 3 and 8 are allowable and Applicant respectfully requests the Examiner to withdraw this rejection of dependent claims 3 and 8.

B. Claim 9

The Examiner rejected claims 9 under 35 U.S.C. 103(a) as allegedly being unpatentable over Harvey (WO 99/01284) in view of Coulman (US 6,045,215).

Harvey is deficient vis-à-vis base claim 1. Coulman is applied by the Examiner for its teaching regarding nickel but does not compensate for the deficiencies of claim 1. Even taken for what they what have meant as a whole to an artisan of ordinary skill in the art, the combined teachings of Harvey and Coulman cannot be said to lead to the features of claim 1. Therefore, claim 9 is allowable at least by dependency, and Applicant respectfully requests the Examiner to withdraw this rejection of dependent claim 9.

C. New Claim 25

New claim 25 requires:

a metallic chamber formation plate, having a first region in which a plurality of pressure generating chambers and a recess portion associated with plurality of pressure generating chambers and a recess portion associated with a reservoir communicated with the pressure generating chambers are formed

Applicant submits that any element, in Harvey, corresponding to the “recess portion” is not formed in the “first region”, as disclosed by claim 25 (and discussed in the remarks for claim 1). Further, Applicant submits that the interposer plate 17 in Harvey is not a “metallic chamber formation plate”. That is, the piezoelectric sheet 14 of Harvey contains the ink chambers 22, not the interposer plate 17. Therefore, interposer plate 17 cannot be said to be a “metallic chamber formation plate”.

Further, any alleged reservoir in Harvey corresponding to the “recess portion” disclosed in claim 25 is not formed on the piezoelectric sheet 14. Therefore, the claim feature of “a recess portion associated with a reservoir” is not taught or suggested in Harvey.

For the reasons discussed above, Harvey does not anticipate the subject matter of claim 25. Even the combined teachings of Harvey, Witteveen, and Coulman fail to render obvious the

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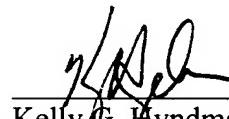
subject matter of claim 25. Thus, Applicant submits that new claim 25 is patentable over the applied prior art.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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